NAVAL BASE, CHARLESTON
Environmental Cleanup Program

This fact sheet is one of a series to inform interested citizens about the environmental investigations and cleanup actions at Naval Base, Charleston. Distribution is coordinated through the Public Affairs Office at Naval Facilities Engineering Command, Southern Division, (843) 820-5771.

ZONES F, G, AND K - ENVIRONMENTAL INVESTIGATION RESULTS

SUMMARY

Results of the environmental investigation for Zones F, G, and K have been compiled and presented to state and federal regulators who will use the results as a basis for making decisions about cleanup efforts. This fact sheet summarizes the results of the RCRA Facility Investigation (RFI) recently completed at these zones.

BACKGROUND

Naval Base Charleston was geographically divided into 12 zones (A - L) to aid in prioritizing the environmental investigation of the base. Zone H was investigated first due to its potential for reuse. The priority for investigation then followed this pattern: Zone I, C, A&B, E, D, F, G, K, L, and J. Investigations are complete for Zones H, B, and D, and reports have been finalized. The remaining zones are in varying stages of the investigative process.

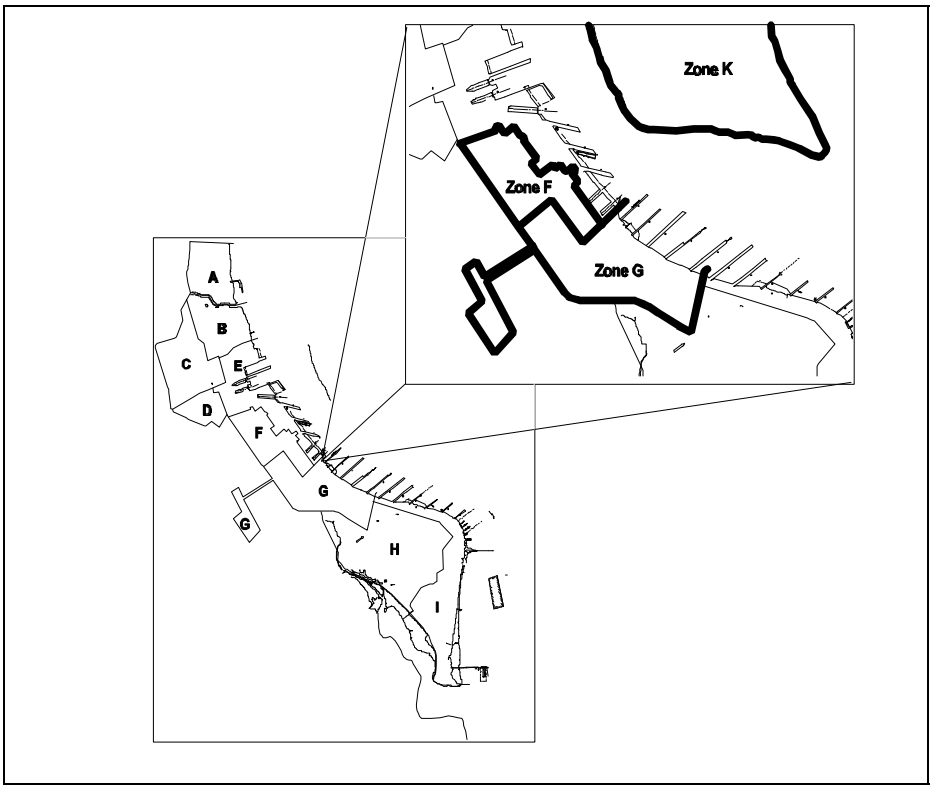
FOR MORE INFORMATION

For more information on the Naval Base Charleston environmental cleanup program, call or write:

Mr. Jim Beltz - Public Affairs Officer
SOUTHNAVFACENGCOM
P.O. Box 190010
North Charleston, SC 29419-9010
(843) 820-5771

Environmental program documents are available for public access at the Information Repository, found at the Dorchester Road Branch of the Charleston County Library: (843) 552-6466.

ZONES F, G, AND K



Naval Base Charleston, Zones F, G & K

Zone F and Zone G are in the central portion of the base. Zone G includes the Chicora Tank Farm, approximately a half-mile west of the base. The boundaries of Zones F and G are outlined on the accompanying map.

Zone K includes non-contiguous Navy properties like Clouter Island (shown on the map), and the Naval Annex (adjacent to the airport property at Remount Road and I-26).

REVIEW OF THE INVESTIGATION AND CLEANUP PROCESS

Beginning in 1993, water, soil, and sediment samples were collected at Naval Base Charleston as set forth in the regulator-approved Work Plan. The samples were then analyzed by a laboratory, and the results were used to evaluate risk to human health and the environment. The Zone-specific RFI Reports include all the information collected during this process.

Using information from the risk evaluation, the Navy and regulators will work together to make decisions about the site, such as:

① Should cleanup be undertaken?
② What should cleanup levels be?
③ What cleanup methods should, or can be used?

Answers to these questions are essential for planning the next step in the process, which is cleanup. The public has the opportunity to provide input on cleanup options.

INVESTIGATION RESULTS

The investigations at Zones F, G, and K were conducted to determine which sites pose unacceptable risk to human health or the environment, and therefore will require additional evaluation in a Corrective Measures Study (CMS). Preliminary recommendations for each site have been proposed utilizing a protective risk- and hazard-based approach.

This approach is based on two primary factors affecting human health:

- Incremental Lifetime Cancer risk (ILCR) - a measure of the probability of getting cancer (in excess of the natural chance of 1 in 4) from exposure to the contaminants at that site.
- Hazard Index - a value used to express toxicity (non-cancer causing risk).

Additional sampling may be required to complete the investigations.

SUMMARY OF RESULTS

A summary of the investigation results from Zones F, G, and K and draft recommendations are provided in the accompanying table. Below is a brief description of each column header which should help explain the results.

- **SITE:** Each site, called either a Solid Waste Management Unit (SWMU) or Area of Concern (AOC) has its own unique identification number.
- **SITE DESCRIPTION:** This column gives a brief description of each SWMU and AOC.
- **PRIMARY CONTRIBUTORS TO RISK/HAZARD:** This column lists the chemicals at each site that were found in the risk assessment to cause the most concern regarding risk and hazard. Complete results can be found in the RFI Report found at the Information Repository.
- **MATRIX AFFECTED:** The "matrix" is the type of material that was sampled, such as soil or water (GW = groundwater). The "matrix affected" is any contaminated matrix which poses a risk to human health or the environment.
- **DRAFT RECOMMENDATIONS:** Draft recommendations for each site are either
  ① no further action (NFA), or
  ② additional evaluation under the CMS.
  These recommendations may change based upon final review by the regulators.

SUMMARY OF DRAFT RECOMMENDATIONS

Site	Site Description	Primary Contributors to Risk/Hazard	Matrix Affected	Draft Recommendations	
				CMS	NFA
ZONE F					
SWMU 4; AOC 619	Pesticide Storage Building; Former Oil Storage Yard	BEQs, chloromethane, manganese, thallium	Surface Soil Shallow GW	✔	
SWMU 36; AOC 620	Battery Shop, Building 68; Battery Shop, Building 68	BEQs, arsenic, aluminum, barium, chromium, thallium	Surface Soil Shallow GW	✔	
SWMU 109	Abrasive Blast Media Storage Area	BEQs, arsenic, beryllium	Surface Soil	✔	
AOC 607	Dry Cleaning, Building 1189	aluminum, arsenic, trichloride, tetrachloroethene, trichloroethene, vinyl chloride	Surface Soil Shallow GW	✔	
AOC 609	Service Station, Building 1346	BEQs, arsenic, beryllium, benzene, antimony, manganese, toluene, 4-methyl phenol	Surface Soil Shallow GW	✔	
AOC 611	Grease Rack and Hobby Shop, Building 1264	BEQs, arsenic, mercury, chromium	Surface Soil	✔	
SWMU 175; AOC 613; AOC 615	Grease Rack and Hobby Shop, Building 1264; Old Locomotive Repair Shop, Former Building 1169; Old Chain Locker, Building 1391	BEQs, aluminum, arsenic, benzene, beryllium, phenanthrene, acenapthene, fluorene, 2-methylnapthalene, bis(2-ethylhexl)phthalate,	Surface Soil Shallow GW	✔	
AOC 616	Paint Shop Former, Building 1201	No COCs identified			✔
AOC 617	Galvanizing Plant, Former Building 1176	BEQs, arsenic, zinc, thallium, manganese	Surface Soil Shallow GW	✔	
ZONE G					
AOC 628	Sandblasting Area, Southeast of Building 68	BEQs, arsenic, chromium	Surface Soil	✔	
AOC 633	Substation, Building 451C	No COCs identified			✔
AOC 634	Flammable Material Storage Building 1814	No COCs identified			✔
AOC 638	Torpedo Workshop, Building 132	BEQs	Surface Soil	✔	
AOC 642	Former Pistol Range, Present Parking Lot	arsenic, beryllium, nickel, thallium	Surface Soil	✔	
SWMU 8; AOC 636	Oil Sludge Pit; Torpedo Magazine, Building 161 Area	BEQs, arsenic, thallium, chromium, bis(2-ethylhexyl)phthalate, antimony, barium	Surface Soil Shallow GW	✔	
AOC 637	Dump Area, Building 161 Area	BEQs, arsenic, hydrazine, benzene, barium, thallium	Surface Soil Shallow GW	✔	
SWMU 11	Caustic Pond	relatively high pH	Sediments	✔	
SWMU 120	Pier M Laydown	BEQs, arsenic	Surface Soil Shallow GW	✔	
AOC 643	Substation, Building 125	BEQs, aroclor-1260, arsenic, chromium, vanadium	Surface Soil	✔	
SWMU 3	Pesticide Mixing Area	aroclor-1248, alpha-chlordane, gamma-chlordane, beryllium, thallium, aluminum, vanadium, chromium	Surface Soil Shallow GW	✔	

SUMMARY OF DRAFT RECOMMENDATIONS

Site	Site Description	Primary Contributors to Risk/Hazard	Matrix Affected	Draft Recommendations: CMS	Draft Recommendations: NFA
SWMU 6; SWMU 7; AOC 635	Public Works Storage Yard (Old Corral); PCB Transformer Storage Yard; Paint and Oil Storehouse, Building 3902	BEQs, arsenic, beryllium, dioxin, aroclor-1260, aroclor-1254, 4,4'-DDT	Surface Soil Shallow GW	✔	
AOC 646	Operational Storage, Building 3906-Q	BEQs	Surface Soil	✔	
AOC 706	Area behind Building 246	thallium, barium	Surface Soil Shallow GW	✔	
	ZONE K				
SWMU 161	Vehicle Maintenance Shop, Naval Annex	No COCs identified			✔
SWMU 162	Sludge Drying Field and Associated Sewage Treatment Facility	BEQs, arsenic, mercury	Surface Soil	✔	
SWMU 163	Concrete Pit Area	BEQs, arsenic, beryllium	Surface Soil Shallow GW	✔	
SWMU 164	Blasting Operation	BEQs, arsenic, beryllium	Surface Soil	✔	
SWMU 166	Sewer System and Former Septic Tank and Associated Drainfield	trichloroethene, dichloroethene, VC	Surface Soil Shallow GW	✔	
AOC 693; AOC 694	Fuse and Primer House, Former Building 117; Former Naval Ammunition Depot	BEQs, arsenic, beryllium, aroclor-1260, cadmium, manganese	Surface Soil Shallow GW	✔	
AOC 695	Electric Locomotive Shed, Former Building 119	Refer to Zone J RFI for Conclusions*			
AOC 696	Transformer Area Near Building 2509	arsenic, beryllium	Surface Soil	✔	
AOC 698	Boiler House, Building 2508	arsenic, beryllium, heptachlor epoxide, benzene, delta-BHC	Surface Soil Shallow GW	✔	

* Samples were collected in the Cooper River as part of the Zone K investigation. These results and conclusions were included in the Zone J RFI Report which addresses all of the bodies of water surrounding the base.

NOTES: AOC - Area of Concern
BEQ - Benzo(a)pyrene equivalent
CMS - Corrective Measures Study
COCs - Contaminants of Concern
CSI - Confirmatory Sampling Investigation
GW - Groundwater
NFA - No Further Action
RCRA - Resource Conservation and Recovery Act
RFI - RCRA Facility Investigation
SWMU - Solid Waste Management Unit
VC - Vinyl chloride